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GLEANINGS

IN BEE CULTURE

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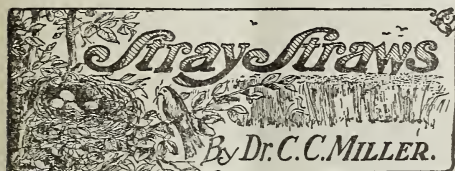
SAN ANTONIO, TEXAS.

GLEANINGS A JOURNAL DEVOTED TO BEES, AND HONEY, AND HOME INTERESTS. **BEE CULTURE** ILLUSTRATED SEMI-MONTHLY Published by THE A. ROOT CO. \$1.00 PER YEAR MEDINA, OHIO.

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YOU'RE RIGHT, Mr. Editor, p. 1011, at first I used saltpetered rotten wood, but had forgotten it—it seems you hadn't. Rotten wood is, perhaps, better than rags; but rags are easier to find in our family.

APPLICATION has been made for a patent on the Columbus foundation (with metal base) on this side of the Atlantic, says "Jung-Klaus" in *Deutsche Imker*. Tell Herr Schulz, friend Jung-Klaus, that the thing is old in this country, and hardly patentable.

PLEASE EXPLAIN, friend Green, more about that use of comb honey for candy, p. 1013. If the honey is heated—and generally no candy is made without heating—wouldn't the wax separate, leaving the honey the same as extracted? Do you mean that the honey and wax are mashed up together some way, without heating?

SOME of our foreign brethren seem to think that Americans have comparatively little to do with extracted honey. I wonder how that is. I don't really know whether more comb or extracted is produced. Perhaps you can tell us something about it, Mr. Editor; at least, you can tell us something about the sale of extractors.

W. GUENTHER says in *Imker aus Boehmen* the best time to move bees a short distance is not in early spring, but between Sept. 15 and Oct. 20. [Between Sept. 15 and Oct. 20! I should say that every thing depends upon the locality to which this is intended to apply. If it comes quite cold so that the bees do not fly much between the days named, then the bees may be moved. In our locality the dates would have to be from, say, Nov. 1 on.—Ed.]

THE price of the new foundation in Germany is 6 pfennigs for 100 square centimeters. If I figure correctly, that's about 13½ cents a square foot. At 55 cents a pound, medium brood foundation costs about 8 cents a square foot. That makes the new foundation about 70 per cent more expensive. In reality the difference wouldn't be that much, for I think prices are higher in Germany than here.

QUITE AMUSING it is sometimes to see the understanding—or misunderstanding—that some of our good friends across the water have of things originating this side. In *Bienen-Vater*, p. 261, without a word of comment from its able editor, Alois Alfonsus, appears an article by K. Muehlstein, who occupies more than a page to prove that a long-tongued queen must be a bad queen, because a queen with a tongue abnormally developed must necessarily have egg-producing organs that are not normally developed! Freund Alfonsus, nicht die Königinnen, sondern die Arbeitsbienen, sind langruesselig.

M. MERCIER says in *Progres Apicole* that if from a colony the queen and all eggs and unsealed brood be removed at the same time, such colony will never develop laying workers. From this he concludes that laying workers are produced in this way: When a queen is removed and all brood left, the brood to be fed becomes less and less at a rapid rate, and the nurses have an oversupply of pap; so the last part of the brood gets an extra dose, enough to make laying workers of them. I wonder if his premises are correct. Possibly W. H. Laws can tell us; for if M. Mercier is correct, then there should never be laying workers in baby nuclei without brood.

IN SPITE of what I have said, under the conditions that you name, Mr. Editor, page 1013, having to make a choice for fall feeding between sugar, and honey that I didn't feel safe to use without boiling, I'd take the sugar. Too ticklish a job to cook the honey enough to be sure of killing all spores without heating too much for good winter-

ing. [I should really like to know, though, whether honey does contain certain food elements that the bees really need, not found in the sugar syrup. During the process of storing in the combs, according to the chemists, the bees invert this sugar syrup so that it is just as digestible as any honey; and in saying this I do not wish to carry the impression that the inverted-sugar syrup is also honey. See the article by W. A. Selser, page 1063 of this issue.—ED.]

SPRINGS for brood-frames! I must have been napping, for I don't remember seeing anything about them before the mention by J. A. Green, p. 1014. Why shouldn't they be a good thing, squeezing the frames up together while you sleep? "They must be made properly, though." What do you mean? How are they properly made? Don't hide your light, Jimmy. [I do not remember to have seen any suggestion of springs for the brood-nest before Mr. Green mentioned them. It is my impression that he put it out as an original suggestion of his own. The springs may be all right, but I am of the opinion I should not care to bother with them. I once talked with R. L. Taylor, who, as you know, is a user of the Heddon hive. While the original hive was provided with thumbscrews Mr. Taylor considered their use unnecessary and expensive. If I remember correctly he gave it as his opinion that the closed-end frames without the pressure would separate just as readily as those squeezed tightly together.—ED.]

P. NEUMANN, in *Leipziger Bztg.*, quotes a Straw from p. 740, and thinks I don't consider the different conditions in Europe and here; for instance, that we have to do largely with comb honey and they with extracted. My good German friend, don't for a minute think that I depreciate the advanced position of bee-keeping across the water. Especially when it comes to theory—upon which all solid practice must be built—I take off my hat to the patient and careful investigators in the fatherland. The only point I was making was that, whereas formerly nothing in the foreign journals appeared as to bee-keeping on this side, now it is the common thing. That may be because our foreign brethren have become more wideawake to pick up good things, as you say, wherever found; or it may be that more good things are to be picked up here than formerly—probably both. At any rate, many of the foreign journals now have a bright eye on the lookout for good things to be picked up, of which you are yourself a good example. And it's a good thing that we're thus coming closer together all the time. Grusz—or, if you'll let me put it in Western U. S., shake.

THANKS, Mr. Editor, for the very clear and explicit instructions for accustoming a horse to an automobile, p. 1012. This is really a very important matter; and if those instructions had been known and followed it might have saved two or three serious accidents here. Just the day before GLEAN-

INGS came, with the aid of my good friend Bert Piper I gave a lesson to one of my horses. At his suggestion I led the horse up to see and smell of the machine; then he started it to chug-chugging, standing still. Then he started up slowly, and I walked along beside the auto, leading Beauty by a long hitch-rope. Without stopping I stepped into the auto, letting the horse walk for a few rods, and then the speed was increased to a trot. After going two or three miles it seemed to be an old story, and I don't believe there will be quite the same fear hereafter. [The horses are getting very much used to the automobile in our locality; but occasionally nervous women and crusty old men, by a sudden drawing-up of the lines until they are taut, yanking up the whip, etc., make the horse feel as if something were going to happen, and so he naturally looks around to see what the impending disaster is. It is well enough for drivers to be prepared; but we should not excite the horse unnecessarily.—ED.]



A French writer says the juice of common plantain is the best thing he has ever found to take away the pain of stings of bees, mosquitos, etc. As the remedy is sure to be always at hand (or under foot) it might be worth trying.

Bee-keepers generally live to be old; but this longevity is not accounted for solely by the use of honey, but by the inoculation of bee poison, either by breathing it or by being stung. So says *Gazette Apicole* on the authority of a French writer. Some have reported themselves as being unfavorably affected by the odor of a hive just opened.

I'm very sure it was Geo. W. York who first carried into practice the idea of teaching schoolchildren something about bees, in the public schools of Chicago. All honor, however, to others who keep up the practice. Children are easily interested in whatever moves, even if that mover makes them move sometimes in a hurry. The nearer our schools can be brought to practical life, the better.

In *L'Apiculteur* for October, Mr. C. P. Dadant gives a fine summing-up of the honey prospects of the United States for this year. The lateness of the season deters me from translating it, for the actual figures are better than any prophecy concerning it. He says there is sure to be far less than an

average crop. I also learn from it that J. M. Hambaugh has left Southern California for Nevada, owing to the severity and frequency of the dry spells in the Golden State.

L'Apiculteur advises bee-keepers to save all the propolis scraped from frames or other parts of the hive. A piece about the size of a black-walnut, when placed on a warm stove, will fill the room with the most delightful odor, rivaling the best essences. Pieces of it placed in drawers containing clothes will impart to them a most agreeable odor. Let bee-keepers take good note of this and save all their propolis.

Dr. Miller says:

Good thing to know that sharp eyes are upon us all the time. Over in Germany a bee-journal calls attention to a slip in GLEANINGS, p. 740, where the French journal, *L'Apiculteur* is called *L'Apiculture*. Now will some one tell us whether that spelling originated in Marengo, or whether it was the emendation of some genius in Medina?

Between *Bulletin d'Apiculture*, which is right, and *L'Apiculteur*, the mistake may have occurred here. *Apiculture* in French is the same as the English word so spelled; but *apiculteur* means the man, the apiculturist.

In the *British Bee Journal* for Oct. 13, Mr. John J. Ker makes the following good points on foul brood:

Some few years ago one of my apiaries (containing some forty stocks) was almost completely destroyed owing to the ravages of this pest. I tried introducing new blood, and purchased a new queen direct from Italy, which was given to a colony and duly accepted. The following spring two of my stocks swarmed, and the young queens mated with Italian drones from the above-named colony. In course of time my other stocks dwindled down to seven, and these were ultimately burned, thus leaving me with only the one stock of pure Italian and two offsprings of the same. This, I think, points conclusively to the value of this particular breed of bees as possessing a certain immunity from the scourge of foul brood. I have had no return of the disease since the introduction of Italian blood, and am constantly improving my stocks by obtaining queens and stocks from all parts of the country.

I take from the *American Bee Journal* the following rather caustic review of what Mr. W. K. Morrison said in these columns relative to glucose. Ordinarily such reviews should appear in the journal publishing the article in question; but perhaps Prof. Eaton had good reasons for inserting his criticism in the "Old Reliable."

I can not see any valid reason why bee-keepers should object to the circulation of the "Wiley lie" when they countenance and spread such articles as that copied on page 688 from GLEANINGS, attributed to W. K. Morrison. Knowing the editors of the above publication, I would not accuse them of intentionally circulating false statements, but attribute them rather to ignorance or oversight.

As regards the article, there is not a single truthful statement of fact from the first to the last sentence, nor in the introductory paragraph. To itemize:

Pure glucose is sold for 10 cents a pound, and less. Chemists do refer to this article when they speak of the wholesomeness of glucose. The article referred to at 50 cents per pound is probably chemically pure dextrose quoted by Merck at \$2.00 per pound, or chemically pure dextrin at \$1.00 per pound—the chief constituents of commercial glucose.

Glucose is *not* a particularly disagreeable article. The poisoning cases in Manchester, Eng., were from

beer made *largely* from glucose instead of containing minute quantities thereof. The glucose was *not* used for color or body, but to supply sugar to make alcohol, thus making a cheaper beer than by the use of grain. The discovery was *not* made by chance, but by tracing the poisoning to the beer, and by chemical analyses thereof by public analysts.

Use of glucose in beer is *not* the principal use to which glucose is put, its principal uses being in syrups, candy, artificial jellies and jams, and preserves. Good beer is free from glucose, and the glucose variety, if not an actual adulterated article, should be sold as *glucose beer*.

Finally, the poisoning in the English beer was not due to glucose *per se*, but to an accidental impurity in the glucose—arsenic—which was due to some highly contaminated pyrite from which the sulphuric acid used in manufacture of glucose was made.

Since the discovery of arsenic in glucose beer, many other articles made from sulphuric acid have been discovered to contain traces of arsenic. Sulphuric acid, however, has not been used in this country in the manufacture of glucose for many years, hydrochloric acid taking its place, which, when neutralized with soda, leaves nothing but common salt in the glucose, and which, being harmless, is not removed.

There are plenty of grounds on which to fight the sale of glucose mixtures for honey without entering the field of fiction.

PROF. E. N. EATON,
State Analyst for the Illinois Food Commission.



EXTRACTED AND COMB HONEY FROM A COLONY AT THE SAME TIME.

"Hello, Doolittle! Got time for a little talk this evening?"

"Yes, Brown. The evenings are quite long now, and it is a good plan at this time of the year, and for the next three months to come, to talk and study up on the bee question, so as to be the better prepared for the season of 1905. But what did you wish to talk about?"

"My bees did not seem to work as well in the sections the past summer as I thought they ought to, and I am thinking of buying an extractor for next season, so that I can extract the honey out of the brood-combs when I put on the sections. I think there was too much honey in the brood-combs for good work in the sections. What would you advise?"

"Well, I would advise every bee-keeper having five or more colonies to procure an extractor, but I would not advise buying an extractor for the purpose you name, for I believe such a fallacy."

"How is that? I was talking with Mr. Smith in this matter, and he thought my plan would be all right."

"Many, like yourself and Smith, seem to suppose that something must be done in times of section honey to clear the brood-combs of honey to give the queen room to lay, so as to keep up the population of the colony, they apparently thinking that, when bees are working in sections, the brood-combs must necessarily become crowded with honey to its exclusion from the sections, while

the truth is that, when the bees are at work nicely in the sections, with a proper-sized brood-chamber, there will be very little honey in the combs under the sections."

"How about that proper size? what should it be, in your opinion?"

"The bee-keepers of fifty years ago considered a hive containing from 2000 to 2500 cubic inches as the right size, and we find that some of them recommended the feeding of inferior honey a week or two before the honey-flow, so as to have the space in the brood-chamber, not occupied with brood, filled with this poor honey, this compelling the bees to put the honey gathered from the harvest in the boxes."

"Well, that would be strange from my standpoint. I should think such a course would stand right in the way of a crop of comb honey."

"It did not. It was a help, but not nearly so much so as would be the reduction of that brood-chamber to one containing only from 1500 to 1600 cubic inches."

"Please explain how it helped."

"By thus feeding they gave the bees no place to put the honey they gathered except in the boxes, thereby losing the use of this inferior honey for half a year or more, besides having the boxes separated from the brood by more or less distance of sealed stores for the bees to pass over, which was, of course, a detriment; yet, even with these faults they secured more honey than they would otherwise, because the first honey gathered from the fields went into the boxes instead of into the brood-combs."

"I think I begin to see the matter in a new light. But how differently do you manage?"

"My plan to accomplish this object has been to have the hive or brood-chamber of a size that an average queen will keep filled to the exclusion of honey, thus keeping the section boxes close to the brood. If you will try this you will find that the queen will keep the combs in a hive of 1500 to 1600 cubic inches filled with brood, except, perhaps, the extreme upper corners; and if any honey is to be had from the fields, the bees will put it in the sections, as there is nowhere else to store it. This is one of the secrets of successful comb-honey production."

"But this does not touch the extracting part, does it?"

"Let us see. Suppose you should extract all the honey from the brood-combs in the 2500-cubic-inch hive every week or so, as you seemed to suppose was necessary, it would be doubtful about your getting more than a few pounds of honey in the sections, if you got any at all. Bees will not enter the sections and build comb therein so long as there are plenty of combs containing empty cells close by the brood for them to store the honey they gather."

"I had not thought of the matter in this light, and it certainly does look that way."

"Yes; and let me say further, you may take a hive of 1500 to 1600 cubic inches, and fill it with frames of sealed honey, and put

on the sections, and then put a strong swarm in it, made by the "shook" plan or natural swarming, the same having a good prolific queen, and in two weeks' time you will have nearly all of said honey in your sections (provided the bees are gathering some from the fields), and the combs below nearly filled with brood."

"But how about the old hive? Will not the combs therein become filled with honey?"

"If you allow a first swarm to issue, or make a shook swarm from any hive, and prevent all after-swarms, by the time the young queen becomes fertile every available cell in the brood-chamber will be filled with honey if the time is during the honey harvest, with a good flow on, and still no start will be made in the sections. But just so soon as she commences to lay, the bees will go to work in the sections, and in 16 to 20 days, if we examine them, we shall find scarcely a cell of honey in the brood-combs, and as nice a lot of brood as we ever saw. Now to get at the point you wished to know, we will suppose that, just as this queen was fertilized, we had extracted all the honey from the brood-chamber, to give the queen room for her eggs, what would have been the result?"

"I will return the question back to you for an answer, for you have upset all of my former notions on the subject."

"The probability would be that we should not get a single section completed on that hive, unless the season was long continued, or the fall flowers gave a good supply; for the bees would go to storing in the cells made empty by the use of the extractor, before the queen had filled many with eggs; and, having plenty of room for the present in the brood-combs, and not entering the sections when they should, they would have restricted the room of the queen, which would result in no honey in the sections, combs crowded with honey, and a weak colony for winter—or, at least, this has been my experience."

"Well, I am near enough convinced that you are right to try this plan another year. But may I ask what frame and hive you use to give the 1500 to 1600 cubic-inch brood-chamber?"

"When I was conducting the most of my experiments I was using the Gallup hive and frame exclusively. These hives, as originated by Mr. Gallup, held 12 frames; but I soon made hives to contain only 9 of the frames. With the purchase of an out-apiary containing ten-frame Langstroth hives I was led, gradually, to adopt said hive, so that I now use these more largely than the Gallup."

"But a ten-frame L. hive is larger than was the twelve-frame Gallup, and either contains more than 2000 cubic inches, while you have been talking about a hive containing from 1500 to 1600 cubic inches."

"Yes, I see an explanation is needed. In connection with the ten-frame L. hive, I use dummies so that I can reduce the hive to any capacity which the queen is occupying with brood at the time the harvest begins. A few of the hives are reduced as low

as 5 frames at this time, more to 6 frames, the majority to 7 and 8 frames, some with 9; and in a few exceptional cases the queen will occupy the whole 10 frames. In this way we can secure the best results in accord to the laying capacity of the queen."



STORES FOR WINTER.

OUR friends are asking by the score how much honey or sugar stores their bees will require during winter. While this question is answered in all the text-books, it may be well to state here that we figure on from 10 to 15 lbs. indoors, and from 15 to 20 outdoors. An ordinary comb, when filled full of sealed stores, weighs anywhere from 4 to 5 lbs. By glancing over the combs one can, therefore, estimate according to their filling about the amount of stores he has; then feed if necessary.

THE CENTRIFUGAL WAX-EXTRACTOR ALSO A HONEY-EXTRACTOR.

I OMITTED to mention in the write-up of the centrifugal wax-extractor that the cut on the right side is to show how the same machine may be used for extracting combs as well as hot wax. A pair of wire-cloth screens properly braced are dropped down into the baskets, one on each side. The combs are then leaned up against these, when a rapid whirling of the basket will throw out the honey in the ordinary way. Of course, the combs have to be lifted out to be reversed.

THE CANDIED-HONEY SEASON AT HAND.

THE season for putting up candied honey in bags, or cutting candied honey into bricks, and wrapping it up in paraffined paper, is now at hand. We are doing a nice little business locally in this line. Our employees prefer it to the liquid or even the best grades of comb honey. Full particulars have already been given for putting up honey in this form, so it will not be necessary to repeat them. If you would like to know how it is done, send for our 1905 catalog, which will be ready for delivery by Dec. 1st. Those who are at all skeptical should test their local markets, first explaining why such honey is absolutely pure, why it must be of the very best in order to granulate solid, for it is well known that an inferior and imperfectly ripened honey will not become hard like cheese or butter in a cool atmosphere.

SIDELIGHTS FROM THE ST. LOUIS CONVENTION; BEE-KEEPING AS A SPECIALTY.

A PAPER read by Mr. W. Z. Hutchinson, on bee-keeping as a business, was an excellent one. He showed what specialty had done in certain lines of work, and urged upon some bee-keepers the importance of devoting their whole attention to bees. This would require keeping more of them, enabling the same tools and outfits to yield a larger revenue for the capital invested. As I have already given the substance of Mr. Hutchinson's able arguments on this subject some issues back, I will not reproduce them here. But the paper as a whole called forth a most spirited discussion. It developed the fact that there are but few who make bees a specialty, the great majority preferring to keep bees in connection with some other pursuit. Dr. Miller poked a little fun at Mr. Hutchinson by asking him how many bee-keepers would be left in the field if all were to be driven out except those who made a sole business of it. "Not very many—possibly 200 in the United States," Mr. Hutchinson responded. "Well," said the doctor, "will you tell us what would be the subscription price of the *Review*?" This raised a ripple of laughter.

Mr. Hardy said he was only a farmer of 220 acres, a commercial photographer, and a bee-keeper. He started only three years ago with 18 colonies in bad condition. These he increased to 154, and took \$134 worth of honey. The second year he did \$750 worth of photographing, took \$2750 from the farm, bought more bees, and sold \$262 worth of honey. This year he made \$592 by photographing, and took two tons of honey. He has been so busy he could not even read the *Review*.

Dr. Miller believed in specialization, but thought we made more advancement by having in our ranks those who carried on a mixed business. Mr. Abbott thought bee-keeping as a specialty was a dream. He, on the other hand, had been educating the farmer to keep bees, showing him how he could increase his profit with little extra outlay of labor.

The discussion developed the fact that there are many farmers who keep bees in a slipshod way. When foul brood got started they would allow it to be scattered, and infect the bees of the specialist.

Mr. Calhoun, of Missouri, was not a specialist. He took 15,000 lbs. of honey this fall, and 10,000 last season. At that time he was a mechanic, a blacksmith, making a living on the farm. He believed the times were advancing, and that the farmer was progressing too, and explained that he could not only make his farm pay, but his bees as well. One should go at his business intelligently with God, not as a one-eyed man raising only hogs and corn. Raising honey, he thought, was intimately connected with the farm.

Mr. Delong, of Nebraska, is one whom the readers of GLEANINGS ought to hear rather than read. He has an inimitable

way of expressing himself, bringing a ripple of laughter all through the convention. He was, he said, what one might call a farmer bee-keeper. He owned a hundred head of cattle, 50 acres of orchard, 400 acres of land, and several hundred colonies of bees, at one time having 525. But he did not believe the farmer could make bees work for nothing and board themselves. He facetiously put it this way: A friend of his asked him how he got so many bees and so much farm. He replied that he got them by sitting down at the corner grocery, whittling boxes and telling yarns. The bigger the yarns, the more bees and farm he got.

Mr. Krebs thought the discussion had taken a sort of side line, or, rather, it assumed that Mr. Hutchinson would drive everybody out of the business of keeping bees except the specialist. Mr. H. meant nothing of the sort. As he understood it, the bee-keeper should be a specialist to the extent that he should understand all the tricks of the trade; but that in order to make the most money he should keep bees only.

I wish I could give space to all the testimony that was offered. One man had paid off a mortgage on a farm with his bees. Another had increased his income. There was not enough flora in his locality to warrant keeping bees on a large scale, but there was enough to make a few bees a very nice side line.

IS GRANULATED HONEY IN AIKIN'S PAPER PACKAGE A BENEFIT TO THE MARKET?

This was one of the questions that was thrown into the question-box. A lively discussion followed, showing that the general subject of candied honey had received careful thought on the part of many of the members present. Mr. France explained that he wrote that question at the request of one of the members, the idea being whether the *effect* of the granulated honey on the market was injurious, or whether we should push the business and seek to *educate* the public.

Mr. Brown, of California, had had some experience with it. He had put his honey in oyster-pails, and it did nicely till hot weather came on, then the honey had a tendency to ooze, forcing its way through the paper. He admitted, however, that his packages had not been paraffined.

Mr. Weber, of Ohio, thought we should educate the people to know granulated honey was pure. The general impression was that honey in that form was nothing but sugar. We might have a good trade if the public could only be convinced that honey in that form was all right.

HOW TO KEEP HONEY LIQUID FOR A YEAR OR MORE.

Mr. Lovesey, of Utah, had tried to sell it in Salt Lake City; but, in spite of all he could say, his customers would insist that it was sugar. He had to relitely all the honey, and even go a little further—put a little amber in it to darken it, because their water-white was not thought to be pure. He

then gave a twist to the discussion, that had a practical bearing. He found it was necessary for him to keep his honey from granulating as long as possible. The only way to do this was to keep it at a low temperature, 100 or 120 degrees, for several days. When honey was heated higher than 120 it lost some of its flavor, he thought. When asked how he heated the honey he said he did it on a gasoline-stove having three burners.

Mr. Dadant took issue with him, saying he thought the honey ought to be put in a vat surrounded by water. His firm had sold granulated honey in pails for many years, and their trade had become educated to it.

Mr. Abbott did not think that heating honey in water was necessary. He had done a large business in selling bottled honey; and whenever the packages candied he took them back and subjected them to dry heat. To put them in water would spoil the labels, making it necessary to wash, wipe, and relabel.

Several assailed Mr. Lovesey on the advisability of keeping honey hot so long; but Mr. L. explained that, while the temperature might go up to 120, it was usually not more than 100—sometimes less. His low temperature long continued would put the honey in a condition to keep liquid for a whole year; while a higher temperature, say of 150° to 160, for only an hour, might not prevent it from granulating again inside of 60 days.

We have had a good deal of proof given in these columns at various times to show that a low temperature long continued will keep honey in a condition where it will stay liquid and clear for a great length of time—sometimes for two years. Mr. Henry Alley used to sell this as a secret, but I believe he has since given it to the public.

LOCATION OF THE CONVENTION NEXT YEAR.

At one of the sessions there were several speeches in favor of the convention going to various places. Messrs. Muth and Weber, of Cincinnati, spoke in favor of that city. Mr. H. H. Hyde made a strong plea for San Antonio, saying it was in the heart of one of the best honey-producing sections in the United States; that there would be a large local attendance; that San Antonio had once or twice stepped aside in favor of some other city, and now he thought that, as a matter of justice, his city should have the convention next year.

Mr. Benton invited the bee-keepers to Washington, D. C., and Mr. N. E. France presented an invitation from the bee-keepers of Oregon. This matter as to where the convention shall go rests entirely with the executive committee. It is possible that they may ask for informal votes from bee-keepers, and make their decision accordingly.

THE BEE CONVENTIONS TO BE VISITED BY THE EDITOR WITHIN THE NEXT FEW DAYS.

I EXPECT to attend the following conventions, occurring at different points as fol-

lows: The Chicago Northwestern at Chicago, Nov. 30 and Dec. 1; Southwestern Ohio and Hamilton Co. Bee-keepers' Association at Cincinnati, Dec. 2; the Minnesota beekeepers' convention at Minneapolis, Dec. 7, 8. A KINETOSCOPE MOVING PICTURE OF A SWARM OF BEES.

We have just purchased a new moving-picture outfit of the very latest pattern—the best that can be obtained. With this I expect to project not only some new lantern-slides but a moving picture of a swarm of bees at the above conventions. This latter will take about 15 minutes to show. Bees are seen pouring out of the hive, flying in the air, clustering on a limb of a tree, are sawn off by their owner, are dumped in front of the entrance, are seen running in, are literally scooped up by handfuls, and finally hived. There are a few other interesting novelties in connection with this picture, all of which will be given at these conventions.

At some of our future meetings I may show in a moving picture the process of shaking or brushing bees to prevent swarming; the process of extracting, etc. There is nothing like seeing a thing done step by step to learn how.

I had intended to be present at the Toronto convention of Canadian bee-keepers on November 15th to 17th; but I find it impossible to get away at this time. I will endeavor to atone for this by going next year. But I shall be glad to meet all of our friends at any of the conventions above mentioned.

I understand that Mr. N. E. France will be present at two of the meetings, viz., at Chicago and at Cincinnati. He will then go on to the Harrisburg meeting, which conflicts for me with the date of the Minneapolis meeting. But for this I would have gone on to Harrisburg and given there a moving-picture exhibition.

This same outfit with the moving pictures, together with some of my best slides, will be shown in many of the different towns and cities of the East during the coming winter. We have made arrangements with a prominent lecturer, the Rev. D. E. Lyon, of Matawan, N. J., also a skillful bee-keeper, to give his celebrated lecture before many of the farmers' institutes and bee conventions of the East. If you have a chance to take in his lecture, do so. His dates will be announced later. Or possibly he may be induced to fill some dates at farmers' institutes. You can write him and see.

A SIMPLE PLAN FOR RELIEFYING CANDIED HONEY IN THE BOTTLE.

IN my report of the St. Louis convention, given elsewhere in this issue, I referred to the statement made by Mr. Abbott that honey in bottles that has candied can be very readily reliefsed by exposing them to dry heat. This I regard as a very valuable hint, coming just at this time. For some months back we have been reliefsing our bottled honey without removing the labels or corks. The bottles are put into a tray

having a coil of steam-pipes under them, subjecting them to a temperature of not more than 105 or 110 degrees. When the granulation all disappears the bottles are taken out without even wiping, and are then ready again for the shelves.

"But," you say, "how about those who do not have steam-pipes?" The back oven to a stove, or even a regular bake oven with a low fire, doors left open, will give the same results; or, better, put the bottles on a wire screen two or three inches above the top of the stove for over night, where they will get a bottom temperature but not very much heat at the corks. If over night does not prove to be long enough, and the stove is needed for other purposes, put the bottles back on again as soon as the stove can be spared.

Some of our correspondents have told of putting the jars back of the stove on a table or shelf, and letting them stand for perhaps a week at a temperature of from 80 to 100 degrees. This is an excellent plan. They will liquefy very slowly; but this very fact will make them resist granulation much longer than if they were heated to 150 or 160, and liquefied in an hour or so.

It might be well to explain that, if the temperature goes too high—to say, 150 or 160 F., the bottle may have to be recorked.

EXTRACTING WAX BY CENTRIFUGAL FORCE.

Some months ago, Mr. T. J. Pennick, of Williston, Tenn., suggested the use of centrifugal force applied to hot slumgum taken out of boiling water. In his opinion the free wax, when hot, would be by this means readily separated from the solid matter in a very short time, and he desired us to test the idea to see whether it would work. We accordingly constructed a cylindrical basket, slightly smaller at the bottom, with a shaft at each end to be inserted in a regular honey-extractor, one end of the bottom shaft being inserted in the bottom bearing of an ordinary honey-extractor, and the other end geared to the regular crank of the extractor.

Old combs were put into boiling water; and as soon as they had become a sodden mass they were dipped out while steaming hot, put in the basket, and given a rapid whirl for two or three minutes. Nearly all of the free wax was thrown out against the sides of the can. The slumgum was next pawed over and given another whirl. The effect of the centrifugal motion is to throw the wax through the perforations of the cylindrical basket, against the sides of the can; and the more rapidly the crank is turned, the more the slumgum will creep up on the inside of the basket, for, it will be remembered, the basket is larger at the top.

Our experimental machine is like a small honey-extractor except that the revolving part is cylindrical instead of having a reel holding two baskets. The bottom shaft of the tapering cylinder is journaled into the bearing secured just above the false bottom of the can. To the top of the cylinder is secured a cross-arm, in the center of which is

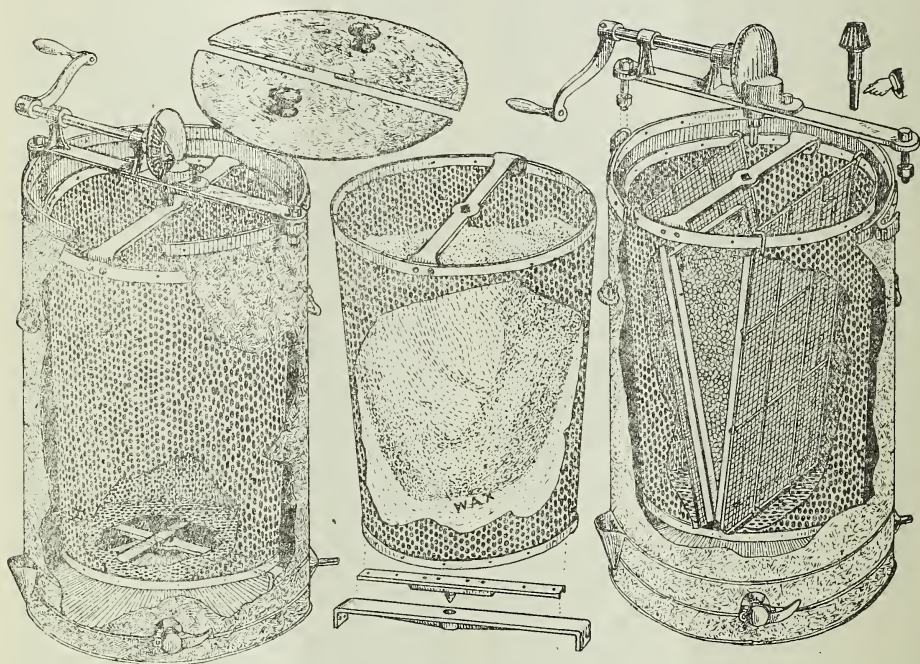
inserted the square shaft and pinion, the latter meshing into the gear of the crank-shaft. A slight circular twist of the cross-arm supporting the crank and gearing disengages it from the hook-shaped ears into which the two end bolts are slid, so that the whole thing can be lifted off. The cross-arm in the basket has a square hole into which the taper shank of the small pinion-wheel is inserted loosely. When the cross-arm is removed this pinion shank slips out of the hole, leaving the basket free to take out and dump.

When ready to extract, an inch or so of water is poured in the lip in the bottom of the compartment of the extractor. It is then set on the stove, or, preferably, over a single gasoline-burner, close to the floor. When the

high rate of speed. As soon as the wax ceases to come out, the cross-arm and reel are removed by loosening the two end bolts and giving the arm a quarter twist. The basket is then dumped, put back in place, the cross-arm secured, when it is ready for a fresh batch of slumgum.

The process can be greatly facilitated by melting the slumgum in a large kettle with hot water and then dipped into the centrifugal wax-extractor and given a whirl. Steam should be generated in the lower compartment to keep the refuse hot while it is subjected to the centrifugal force.

While experiments so far conducted have shown that this machine will give good results in some cases, yet a considerable quan-



CENTRIFUGAL WAX-EXTRACTOR.

water boils and steam is generated, old combs and slumgum are poured into the basket, and then the cover-lids are put in place. The operation of extracting wax is now much the same as with the German wax-press, for the steam is allowed to pass through the mass until much of the wax runs out by gravity. When the refuse is hot, the handle is turned briskly, throwing out free wax. The remaining solid matter will creep up on the sides of the cylindrical basket, exposing a large surface to the action of the centrifugal force. As soon as the wax has ceased to strike against the sides of the can, the lids are removed, and a stick claws the contents over; then the lids are replaced, and the reel is revolved again at a

tity of wax is very often left in the refuse. This fact is shown by taking some of the steaming-hot slumgum in the hand and squeezing it, which produces fine yellow lines of wax in the creases between the fingers.

Although the machine does quicker work than the press, it wastes wax, and this is a most serious fault. It would indeed be penny wise and pound foolish to use a machine that would waste even a small percentage of so valuable an article as beeswax.

We prepared illustrations with the expectation of putting the machine on the market. It is somewhat disappointing that it should seem inadvisable to put it out just yet if we do at all.

THE ANALYSIS OF HONEY.

To what Extent may we Depend on it? the
Definition of Honey.

BY WILLIAM A. SELSER.

It is a blessed thing that the advancement in scientific research has made it possible to detect, not only the adulteration of honey, but the doctoring of it with acids and chemicals, as well as to discover in many cases, by analysis, if the bees have gathered the nectar from any source other than what the government defines honey to be—"nectar from flowers."

Within the last year new States have been added to the list of those passing pure-food laws; and these laws have been made so stringent, not only regarding adulteration, which is adding in quantity to honey some substances other than those gathered by the bees, but they also attach a penalty to doctoring honey with any substances whatever, in the slightest degree. So it is very important for the bee-keeper to realize that, if he does any thing to his honey except heating it in the regular way, heavy penalties are attached to the sale of it by the pure-food laws of the different States.

Honey may be pronounced pure by the average chemist, and yet if only a few drops of phosphoric or salicylic acid are added, or the least quantity of glycerine or other substances which are well known to help keep extracted honey from candying, it is a violation of the pure-food law.

In order to set at rest throughout the United States in various courts of law what honey is, the Bureau of Chemistry in the Department of Agriculture at Washington has defined honey as follows: "Nectar gathered by the bees from flowers, and deposited in wax cells." Therefore it follows that what is often called honey, fed from granulated sugar taken up by the bees, deposited in cells and capped over, is not honey. It also follows that honey-dew deposited in cells, and capped over, is not honey, nor is juice gathered by the bees from the grape, peach, or any other fruit or any other substance whatever, though taken into the stomach by the bees, and taken into their honey-sac and chemically changed, and deposited in cells, pure honey. This has been a most marvelous revelation of recent occurrence. For years I have made a special study of analysis of all kinds of honey in their relation to the pure-food law, and I have demonstrated beyond a question that there is often honey put on the market that the bee-keeper feels he had nothing to do with in adulterating, which would be thrown out by the pure-food inspectors as adulterated.

A gentleman from Conshohocken, Penna., brought the writer a sample of very pretty good-bodied honey which he said his bees gathered from grapes when they were punctured by other insects, or burst open from being overripe. The writer impartially put this honey through severe tests in the labo-

ratory, and discovered conclusively by analysis that it was not pure honey. I was greatly surprised to know that, in the reading of the polariscope, the results indicated this condition.

In 1902 I visited some of the large apiaries of Mexico, Texas, and Southern California, as well as Colorado and other points. I took from the hives personally what I was confident was the honey gathered from the various sources, and I found in every instance where the bees had gathered the various honeys from the blossom of the flower or plant that the analysis showed pure honey. I very carefully filed for reference the various results from the different honeys. I also visited a section in the mountains of Redlands, Cal., to get some honey supposed to be gathered from the sugar maple, but I found that the bees do not gather enough at the time of storing surplus from this to get a sample, as had been reported previously by some that they would do, but that some samples of honey sent from California, that were reputed to be gathered from this section, were adulterated and mixed by the honey companies putting it up, who tried to shield themselves behind this pretext.

The question has come up repeatedly by the laity, that, if bees gather any thing from any source, and it undergoes a chemical change in their honey-sac, and is deposited in cells, and capped over by them without the aid of man, could we declare it adulterated? I would answer, most emphatically, "Yes," and the court refers back to the government definition for the answer in deciding the case. Therefore I say, chemically speaking, honey-dew is not honey. I advise all bee-keepers who know their bees are working on honey-dew not to put it up in any way so that it may be marked pure, as it would be a violation of the pure-food law if sold in the various States having such laws.

Recently there has been honey that was absolutely pure, excepting the addition of a small quantity of phosphoric acid to prevent its granulating, which the pure-food inspectors of Ohio have thrown out as adulterated, and as an infringement on the pure-food law. While the addition of the phosphoric acid was in very small quantities, said to be only a few drops to the gallon, yet it was discovered by chemical analysis, and declared to be a violation of the pure-food law.

Prof. H. W. Wiley, Chief Chemist of the Bureau of Chemistry, at Washington, has had a number of vigorous young men fed on the various preservatives, salicylic acid with the rest, to discover how much damage to the linings of the stomach these various preparations do. There is no question in the writer's mind that they are very injurious, and Prof. Wiley so states. Just the extent of their damage, and the result of his experiment, are on file in the Department, but the writer is not familiar with them.

It has certainly been a boon to the bee-keeper, at least those who wish to do an

honest business, to know that any manipulation whatever of their crop of honey will be discovered, and that the government has been so persevering in giving us laws that are so helpful.

Jenkintown, Pa.

A VISIT TO SWARTHMORE.

A Near View of Mr. E. L. Pratt.

BY DR. E. F. PHILLIPS.

The readers of GLEANINGS have for some time been familiar with the writings of Swarthmore, and the new methods described by this writer have caused considerable comment among bee-keepers. For this reason

take this line to reach Swarthmore. This line takes us through a beautiful country, and on our journey we pass through several small towns in which, like the town which is our destination, are the homes of people having business in the city. At Swarthmore is located the college of the same name which is under the management of the Society of Friends, or Quakers, as they are commonly called. On this account most of the streets of the town are appropriately named for the leading colleges and universities; and the apiary which we are to visit is located near the corner of Yale and Vassar Avenues.

Before seeing the yard let us meet the man behind it all. The engraving here printed is a very excellent likeness of Mr. Pratt. He is a man of short stature, rather artistic



MR. PRATT, HIS WIFE, AND DAUGHTER GRACE.

some may desire to have the *nom de plume* Swarthmore cast aside for a while that they may get a view at close range of Mr. E. L. Pratt, of Swarthmore, Pa.

The writer of this article has had the pleasure of knowing Mr. Pratt for over a year, and has repeatedly visited his yard, and the editor of GLEANINGS requested an article telling something of the man and his work.

Swarthmore (the town) is reached by trolley from Philadelphia in about an hour from the center of the city. At the end of the Darby line, in the old village of Darby, the suburban line to Media begins, and we

in his make-up, and with a deep sense of appreciation of what is worth while in this life. He to some extent disregards conventionalities, and appreciates more than most men the fact that what is lasting and of greatest value is not the hurried scramble after money, but careful solid worth which will stay and be of value to mankind. Of course, he is in the queen-rearing business for money, and he does a good business too; but at the same time he continually experiments on new methods, and spends much time studying the habits of the bees. I suspect that some bee-keepers will be surprised at my statement that the subject of this sketch is

a conservative man; in fact, I am fully aware that he has been criticised for advocating methods which have not been fully tried out and which will not work; but from my acquaintance with Mr. Pratt I am sure that he never wrote a description of a new method unless he had first used it with success. That others have failed on trying the same thing is another story; but I am convinced that always this result has been due to a careless reading of his articles or a lack of knowledge of the habits of the bees themselves. Although my list of acquaintances among bee-keepers is rather limited, I believe from what I have learned that but few of them are as careful students of the habits of their bees as is Mr. Pratt. In addition to

practically the yard is as large as that of most queen-breeders, and a very large number of queens can be and are produced every year. In addition to this yard there is an outyard with a few large colonies for producing drones, and a goodly number of mating nuclei. The object of having this outyard is that small nuclei may be made up in one yard, carried to the other yard and opened at once, thus making it unnecessary to confine the bees for three days.

To go into a description of the queen-rearing methods of Swarthmore would require more room than can be used here, even if we were to give but a superficial account, and this is unnecessary since the readers of this journal have had the opportunity of



SWARTHMORE MAKING UP SMALL NUCLEI.

his work in the apiary, Mr. Pratt is the editor and publisher of *The Swarthmore*, a weekly newspaper.

The apiary is not a large one, the numbers of full-sized colonies being about sixty; but since Mr. Pratt has no helpers, and since his methods of work do not require a large apiary, he has never increased his stock. Next spring he expects to increase to one hundred, but this will be all that one man can possibly care for under the system used here. In addition to these full-sized colonies there is a large number of small mating colonies—"baby nuclei," the number in use depending on the season of the year, so that

reading of this system in articles by Mr. Pratt himself. The main points of this Swarthmore system are the laying of eggs in queen-cells by the breeding queens, to save the long process of grafting; the use of flanged wooden queen-cell cups to make handling easier, getting large numbers of queen-cells accepted by the "swarm-box" method, and the use of small mating-boxes; and, above all, superiority of this system rests on the fact that its use does not necessitate the stirring up of the bees in the hives when the cells are being handled. Almost the entire process may be gone through without the use of a smoker, and the bees are not

taken away from their work by the puffing of clouds of smoke into the hive. If the reader will try the following experiment, the advantage of little smoke will be evident: Puff a hive full of smoke from any of the infinite number of patent smokers now on the market; repeat in a few minutes, and wait beside the hive until the first bee leaves to gather honey. This experiment requires considerable time, for the wait will be a long one; but it will be time well spent if the experimenter has been in the habit of using his smoker too freely.

The use of small nuclei for mating is the part of the Swarthmore system that has been most debated by bee-keepers, and we will not go into this subject at this time. This is not the chief point in the system, however; and, even if larger colonies are used for mating, the rest of the system may be profitably studied. The use of royal jelly has been shown by Mr. Pratt to be but a

suggestive than the Swarthmore system. But few, possibly, will care to use this method entirely unmodified; but before condemning the system, as some have already done, the bee-keeper should be perfectly sure that he has tried it.

Mr. Pratt has also devoted much time to the breeding of a particular strain of Italian bees which he calls the "Golden-all-over" bees. The name describes them well, for they come as near to filling the description of the old Roman poet Vergil as any bees that I have seen. These bees are not cross, as are some of the five-banded bees, but are the most gentle bees that have come to the notice of this writer. Their honey-gathering is said to be good; but I am writing only of what I know, and on this subject I have had no experience with them.

In conclusion I would commend to your good graces my friend Mr. Pratt. He is a good fellow, and is worthy of the careful con-



A PART OF THE YARD AND HONEY-HOUSE.

waste of time; the use of artificial cells, although it did not originate with him, has been advocated by him, and is now widely used; the laying of eggs in wooden cell cups by the breeding queen saves much time formerly spent in transferring larvæ. These and other points are as useful as small nuclei. Mr. Pratt was, I believe, the first to use compressed wax cell cups.

Every bee-keeper has certain pet ideas of his own, and certain tools or fixtures about his yard which are not used by other bee-keepers—that is, if he devotes much attention to his bees. Queen-breeders especially are each one the advocate of some particular method. All of this is right, and indicates that these men are trying to arrive at the best method of work. In addition to his own methods the queen-breeder should study the other systems; and of these none is more

sideration which you may give to his writings.

Philadelphia, Pa.

THE HOFFMAN FRAME PRAISED.

Tried Many Others, but Likes Hoffman Best;
its V-edge End-bar Condemned.

BY C. DAVENPORT.

I read the symposium on Hoffman frames with much interest, and I should like to be allowed to give my opinion on the matter. As you probably know, I am one of the few who make a specialty of bees, or, in other words, I depend on and make a living entirely from bees; and I believe there are but very few who have depended upon bees alone for their entire support as long as I have.

I have tried about all kinds of frames that have been described in print, and many others; and if I were obliged to choose and use any of the frames offered to the public I would take the Hoffman, as I consider it, even as now made, to be superior to any loose hanging frame or other self-spacing frame with which I am acquainted, and this without any regard to locality; for I do not believe that there is any place on earth where propolis is any worse than it is here. But after all this I wish to state that I would not take and use the Hoffman frame, as now made, if they were given to me and I were paid a bonus of five dollars for every hive I used them in. This may seem like a strong assertion, but it should be remembered that frames, barring accidents, will last a lifetime; and five dollars a hive would be no temptation for me to use the Hoffman frame as now made the rest of the time I hope and expect to live. Still, the frame I have used largely, and am changing to entirely, is but little different from the regular Hoffman. The end-bars are just the same, except that the edges are all square. The V edge is the greatest objection I have to the regular Hoffman; and although, Mr. Editor, I know you do not agree with me in this, I wish to be frank about the matter, and say that I do not believe you or any other intelligent man, after using thousands of these frames, both with and without the V edge, as I have, would, in a locality where propolis is as bad as it is here, tolerate a V edge for hardly any money consideration.

In theory the V edge is a nice thing; but in practice and use I have found that the square edge is far better. With two square edges together, if they are pressed up close there is but little chance for them to be glued so that it is hard to separate them; but with a V and a square edge together the case is far different. The channel or open space on each side, caused by the V, will be filled solid full of glue, which is, of course, also fastened to the square edge; in fact, I do not see how any thing better than a V and a square edge could be devised to enable bees to glue frames together. But so far as sticking together is concerned I don't care much if any thing about this, for I can separate them all right. The trouble is, they are often stuck together so tight that they will not separate at the joint; but the projection, either on one frame or the other, breaks off. I have broken hundreds of frames in this way. Of course, any one could tinker away and finally separate them at the joints; but I have not time for this in the busy season.

When I open a hive and wish to remove a frame I take it right out, or at least I take

out the top-bar (in a few cases with the V edges this was all I got). Another strong objection to a V edge here is that they are great bee-killers. There is so much propolis plastered in and around these V edges that they soon become much wider or thicker than a square edge.

One more of the many other things against the V edge is that there are three different ways these frames can be nailed together, and each will work all right — that is, those that are all nailed one way will work together, but they can't be used with those that are nailed either of the other ways. As you probably know, there are two ways to nail these frames, and have a V edge on each side of the top-bar; that is, I can start nailing them together, a V edge on each side of the top-bar; and as long as I keep on the way I started, my frames will work togeth-



ANOTHER VIEW, SHOWING SWARTHMORE AND VISITORS.

er all right. But you start the other way, although you have a V edge on each side, and yours will work all right together; but yours and mine can't be mixed or used together.

Last spring I went to look at some colonies a party wished to sell, and I found these frames had been nailed up in a still different way. Both V edges were on one side of the top-bar, and both square edges on the other. These frames could not be used with frames nailed either of the other ways, nor even reversed among themselves. I know that you explain in your catalog the right way to start nailing them; but I do not believe one person in a thousand would see or understand that there are two ways to start, and still have a V edge on each side of the top-bar. I have found that about as many start-

ed one way as another. This matter has been a nuisance to me, both in buying and selling bees.

Now in regard to the top-bar, I do not want a bar $\frac{1}{4}$ inch thick. A bar $1\frac{1}{8}$ wide and $\frac{3}{8}$ thick suits me far better, and I have no more burr and brace combs with such a bar than with one $\frac{1}{4}$ thick; and I do not want any comb-guide nor saw-kerf and wedge, for either starters or full sheets can be fastened to a plain bar with melted wax much quicker and more securely than with a saw-kerf and wedge; and a molded top-bar, or one with a comb-guide, is a nuisance to clean.

After further experience I have decided that I want a top-bar full length. Staples and a short bar work all right in hives that are straight and true; but if a hive is warped or gaped at the corners it is a different matter. I also want the top-bar to run out full width clear to the end. As now made they give a better chance for one to insert the fingers at the ends; but these small ends with me often break off, and then the bar is ruined.

Another advantage of small ends is that the bees do not have such a chance to stick them to the end of the hive as they do with a bar that is full width at the end; but this advantage can be had without weakening the bar at the end, by simply cutting off each corner, so that just a point of the end-bar touches the end of the hive. I pointed the ends of about 500 frames in this way last winter, and after one season's use I can see no fault with the plan. It gives the bees no chance to fasten the end of the top-bar to the end of the hive, and the frame is not weakened in the least, for it is left full width where it rests on the rabbet.

Southern Minnesota.

HOFFMAN FRAME ESPECIALLY ADAPTED TO INCOMPETENT HELP.

Hoffman Frame Come to Stay.

BY H. H. HYDE.

Mr. Root:—I have read your symposium on Hoffman frames; and as I have been an advocate of a special form of that frame I feel that I must have a word to say.

In reply to Mr. Green, page 930, I wish to say that division-boards are worse than useless in ten-frame hives, and I do not approve of their use in eight-frame hives. Where bees are run for extracted honey we use only 7 frames in an eight-frame hive, and 8 or 9 in a ten-frame hive. If we desire to use the frames for brood-combs we carefully scrape the edges of the projecting end-bars, and then they are ready for the brood-chambers. In fact, once a year we go through our bees and scrape off all surplus propolis from the hives and frames. We do this in the spring of the year, and we thus have clean hives and frames to manipulate during the busy season. To scrape the bees thoroughly is not nearly the job you might imagine it to be. One man can easily clean

from 25 to 50 colonies per day, and he ought to get nearly enough wax to pay for the work; but if he does not, we get the money back in time saved later on in manipulations.

On page 931 Mr. de Beche remarks on the excellence of the Hoffman frame, especially where hired help is to be considered. Where much of the work is dependent on hired help I can not see how any one can get along without Hoffman frames. I know that we can not here in Texas. Again, when it comes to moving or shipping bees, or practicing migratory bee-keeping, the Hoffman is the only hanging frame that we can at all consider. Referring further to his mention of propolis, I will say that, if properly made hives are used, and Hoffman frames too, and both hives and frames are well cleaned each year, the manipulations of the Hoffman frames will be a pleasure indeed.

Please note F. Rauchfuss' opinion of the Hoffman frame on page 933, and he agrees with me exactly. Give me long top-bar frames and square edges on the end-bars, no matter how bad propolis is; for by proper spring scraping you can keep your frames easy to manipulate at all times.

Allow me to reiterate my formerly expressed preference for frames having a top-bar only $\frac{1}{2}$ in. thick. These are thick enough to prevent any sagging, and we do not have any more brace-combs with top-bars $\frac{1}{2}$ inch thick and 1 inch wide than we do with the heavier article. We save just this much wood and get the brood that much nearer to the supers. When it comes to bottom-bars, give me one at least $\frac{3}{4}$ inch wide and $\frac{3}{8}$ thick; then we have a bar that will stand the racket. This, with long tops for the top-bars, and square edges on the end-bars, constitutes the ideal Hoffman brood-frame.

To discontinue the use of the Hoffman frame would be a step backward in the wrong direction. That frame is here to stay, and I for one am glad of it. We have used it for comb and extracted honey largely, having operated as high as 1200 colonies of bees, and we have not found it wanting. Keep them going, and you will make no mistake.

NO DANGER OF POISONING BEES FROM PARIS GREEN SPRAYED ON COTTON.

I have noticed during the present season one or two requests for information, and your replies, in regard to the use of Paris green or other poisons on cotton, and note that the editor is of the opinion that bees may be poisoned by working on cotton poisoned to kill insects. I wish to inform you that such is not the case, and I do not believe that there is an authentic case on record where bees were poisoned by working on poisoned cotton. Several years ago while in Williamson Co., the leading cotton county in the State, each fall the cotton was poisoned for the army-worm, and our bees worked heavily on the cotton, and so did all the bees in the entire country roundabout; and so far as I know there were never any

bees poisoned, nor any poisoned honey carried into the hives. I think bee-keepers may rest easy on this matter, and may safely stand by and let the cotton-men poison all they want to.

San Antonio, Texas.

[The discussion on Hoffman frames has not been without its value. The suggestions made in our symposium on page 930, Oct. 1, and by our two correspondents as above, are in line with those made at different times by various users of the Hoffman frame. It is, perhaps, not too much to say that we are seriously considering the advisability of making end-bars with square edges, and, not only that, but a little thicker. During the season of 1905 we shall be prepared to furnish either square or V edge as an option.]

Whether it would be advisable to make the top-bar thinner is a question. A frame with a $\frac{1}{2}$ -thick bar is very much stiffer than one with only a $\frac{1}{4}$ -inch bar.

As manufacturers we desire to have the truth; and especially do we wish to know what the users of these frames want. We shall be glad to hear from others of our correspondents, either privately or for publication, for the votes that we get will determine to a great extent what our future policy with reference to these frames will be.

It is, perhaps, unnecessary to state that both of these articles came unsolicited.—Ed.]



A PLEA FOR ENAMELED CLOTHS AND QUILTS.

Mr. Root:—Is there not also a bright side to the enamel-cloth question? I can see that you have a decided opinion on the use of enamel cloths and quilts above the brood-nest; moreover, this opinion is, doubtless, based upon practical experience. I therefore ask you, not to raise an argument, but to gain information, whether you have not found points in favor of the cloths that might counterbalance the blemish you have set forth from time to time?

Barring the cost of the cloth and the labor involved in hoisting that proverbial "20-lb. stone," or adjusting such other fastening as will serve to hold the cover in its place, is not the bee-keeper to be envied who can "peel" his enamel cloth back at his own pace, with his faithful smoker driving down any turbulent spirits as each successive space is exposed? When he begins operations on a hive, he requires no tool whatever. That "hermetically sealed" cover must be pried ever so carefully if one would avoid that fatal snap as it leaves the hive. Next thing, instead of single hives of

combatants (I mean no injury to the little bee by applying this term), there is a whole sea of bees to be driven down between the frames. If you have proceeded so far without receiving a sting, then good. But the bees that remain adhering to the cover are still a nuisance. They have no access to the honey "vats;" the queen you are looking for is possibly among *them* instead of being on the combs you are examining. They become restless, and, having been deprived of that "good dinner," they may leave the cover and drive you to cover. Well, suppose they don't, and you have been successful in your operations. Those bees on the cover, if they're any good, will not have been idle in this interim either. I warrant that they have shifted their position; they have either crawled into a position that will be unpleasant for your hands, or one that is not conducive to their longevity, should the cover be carelessly replaced. Why would it not be better to keep the bees from trespassing on the cover at all? also in this bee-space system, when new fixtures are used and ruptures have been made in the exalted hermetic seal, there still remains the danger that the cover may be lifted off by a demonstrative gust of wind.

Also, what is the objection to a hive built with a bee-space below the frames and none above, if you pass over the difficulties you may have experienced with the quilt? I think I could point out at least *one* advantage; namely, the immunity from burr-combs when breeding in two stories.

I hardly think the catacomb-like condition of which Mr. Bowey writes on p. 848 could obtain where there is no bee-space above the frames.

R. WUESTE.

San Diego, Cal., Sept. 8.

[There is no denying the fact that the enamel cloth has some good features, chief among which is that of peeling off without arousing the anger of the bees. Its undesirable qualities I have already given, and will not repeat them here. To put the bee-space at the bottom instead of at the top would be a serious mistake. If it is desired I will at some future time give the reasons why. It would require an extended article to explain.—Ed.]

HOW MANY ACRES OF HONEY-PLANTS WILL BE REQUIRED TO SUPPORT 100 COLONIES?

How many acres of good honey-plants are required to keep 100 colonies of bees busy during its blooming period? Can some alfalfa man tell about how much honey an acre of alfalfa would produce? also how many acres of the same clover are required for 100 colonies of bees?

F. W. MORGAN.

De Land, Ill., Oct. 24.

[No definite answer can be made to your question, as every thing depends upon the locality and the honey-plant. As a rule we may say that basswoods will yield a larger amount of honey per acre than any other plant unless it be the logwood of Jamaica. In a general way we may say that honey-

yielding *trees* will yield more honey per acre than any shrubbery or plant.

In some localities 1000 acres might take care of 100 colonies; but as a rule we may figure that it will require much more than this. As a general thing bees do not fly much further than a mile and a half from the home yard. This would make a circle of three miles across, or 4521 acres. If we allow liberally for wooded lands, cultivated lands, and dwelling-houses, probably we should have to cut down this amount by at least a half, probably a little more, so that, in the height of the honey season, taking clover and basswood as they may come in, 100 colonies would not have access to much more than 2000 acres. This would make an aggregate of 20 acres per colony.

If we turn to the alfalfa regions we shall probably find a much smaller acreage required to take care of 100 colonies. Just what this acreage may be I could not say, and therefore leave it to some of our alfalfa-honey producers to give us any available data they may have.

This is an interesting problem, and it has some practical bearing, because this question of overstocking has come to be a very serious one. In the alfalfa localities it can be definitely known how many thousand acres there are of this plant for a range of $1\frac{1}{2}$ miles. One can, therefore, determine pretty closely how many colonies can work profitably on a given number of acres of alfalfa.—ED.]

OVERSTOCKING.

In regard to the subject of overstocking, it is surprising how many there are who seem to think that, because a locality will support ten or fifteen colonies and give good returns, it is a "*fine bee-range*." It seems to me that one of the principal reasons that, the more colonies you have in a location, the less honey you get per colony, is *not* because there is not honey enough within range, but because many bees visit the same blossoms only to find that some bee just preceding it has sucked all the honey, and still there is just enough scent of honey to attract them, and thus thousands of bees visit flowers one after another, only to be disappointed; whereas if there were few bees in the same field each bee would have to stop on only a few flowers when it would have a load, without having exhausted either strength or time, and both time and strength count heavily during a flow of honey. It is like going into a chestnut-grove. The first trees you reach you begin to pick up burrs, and possibly find one out of a dozen that has not already been robbed of its contents. I believe that bee-keepers are beginning to realize the importance of smaller apiaries and more of them. D. R. KEYES.

Quitman, Ga., Oct. 17.

BEE PASTURAGE PROTECTED BY LAW.

Mr. Root:—On page 967, "One thing is certain: If bee-keeping ever becomes as stable and reliable a pursuit as other lines of

agricultural industry it will be when a man can feel just as sure of the pasturage for his bees as he does of the pasturage for his cattle, and that time will never come till he has some legal rights in the case."

If the above may be understood to mean that an individual bee-keeper should have legal protection as an exclusive occupant of a given territory, that time will never come. I think no sane person would contend for a moment that an owner would not have a right to cut his basswood timber, even though it might destroy the bee-pasturage; nor that he would not have the right, ethically and legally, to cut his luxuriant alfalfa before it blossomed, nor that he would not be justified in plowing under his white-clover pasture, and planting the field to corn if he desired to do so, though his bee-keeping neighbor might be compelled in consequence to feed his bees.

Who shall say that he shall not have the right to use his own, which he may utterly destroy? No legal rights will nor can be given in cases such as referred to, because no law can be found to meet the case without interfering with the personal rights of individuals in the control of their own property. No court in Christendom, not even a cross-roads justice, would sustain such a statute unless he had "a bee in his bonnet."

WM. M. WHITNEY.

Lake Geneva, Wis., Oct. 21.

GETTING RID OF FERTILE WORKERS AFTER BROOD-REARING IS OVER.

While I am aware that it has been said that no successful bee-keeper would allow his bees to be so long queenless as to get fertile workers, the fact remains that many do. Even our good friend Dr. Miller gives us a valuable point on page 968.

To keep them out entirely requires a lot of looking-after, which many times is unprofitable, and at times impossible. While it is best to examine before the honey-flow is over, and brood-rearing as well, it often happens after this is done that fertile workers will get to business. Particularly is this true of colonies which supersede after the main crop is over.

To get rid of fertile workers the rule is to "give several frames of young bees," which is practically impossible late in the season. Transferring larvæ into their queen-cells is also out of the question. Uniting is usually practiced; but even then if both colonies united are strong enough to winter alone, one is virtually lost. I give you a method which enabled me to preserve the colony and get rid of the nuisance.

Go to a colony which can spare three or four frames of bees—the more the better, for fertile-worker colonies are usually weak. Be sure you leave the queen behind. Place in an empty body, and put back frames of honey in place of those removed. You take the body and bees to the fertile-worker hive. Place a wire screen over the fertile workers, and the frames and body over the screen,

the same as is done in uniting. As soon as the bees in the upper story find they are confined and queenless, give them a queen, which they are in just the condition to accept. After three days remove the screen and the job is finished. If you are in doubt as to the result, just watch the little fellows carry in pollen where they before were idle—this being, of course, on the supposition that the queen has been accepted in the story above.

G. A. BOSTWICK.

Verbank Village, N. Y.

WINTERING INDOORS IN A MILD CLIMATE.

I have just bought 75 colonies 45 miles from home. There is a good sawdust-packed house, walls and all, 8 inches of sawdust. They have been kept in the same for years.

I can not be on hand to open doors nor watch a thermometer. Shall I risk the house for winter? I should like some one to answer who has such a house.

Hopkins, Mo., Oct. 8. J. C. STEWART.

[I am not familiar enough with the locality under consideration to advise you what would be your best course; but my impression is that, in a climate like yours, where the bees can not be looked after indoors, it would be far better to winter in double-walled hives outdoors; indeed, they might winter all right in single-walled hives. In many portions of Missouri this is just the way the bees are wintered, and with fairly good results. In a mild or moderate climate, indoor wintering does not usually give as good results as leaving the bees outdoors, particularly where they can not be looked after.—ED.]

WHY GLUCOSE HONEY SELLS; AN EXPERIENCE IN SELLING TO THE STORES AND TO THE CONSUMERS DIRECT.

On page 833 you speak of people buying mixed honey from seeing the word "Honey" prominently displayed on the label. I think that the cheaper price has more to do with it than any thing else.

I have personally sold honey to over 210 different people this season; and in several places where I called I was told that they could buy a whole quart of "lovely" syrup for ten cents—just as good as my honey for which I asked 10 cents per pound or 35 cents per quart, can included. Well, I told them, "Just eat your 'lovely' syrup if you like it; but investigate a little, and may be you will like it better." In regard to the pure-food law, before it was passed nearly every grocery in the few towns where I am acquainted kept extracted honey in jelly-tumblers on the shelves, bought through the wholesale grocery dealers. I have taken some pains to see if they still continued to sell it. I have found it in only one store this year, and that had been on the shelves for a long time. Evidently our pure-food law is of some use, although the sale of "corn syrup" is very large; but so long as it is sold for what it is, I suppose it is all right.

Another thing which puzzles me is, that I can go to the villages where I usually sell honey, and sell a lot; but the storekeepers can not sell any when I leave it with them. One case in point: I sold in my home village eight dozen quarts early in the season. Six weeks ago I left nine quarts with one of the merchants, and he has sold two, although several who have asked me for honey I have referred to him for it. Is this common or exceptional?

J. A. CRANE.

Marion, O., Sept. 20.

[Very likely the price is the determining factor in the sale of these cheap glucose syrups in preference to honey. I have sometimes thought that, if honey could be put up in such shape that it could be sampled by intending purchasers, by taking a spoonful of it, and at the same time let them taste a sample of this cheap stuff, the honey would outsell the other solely on its merits.—ED.]

A NOVEL EXPERIENCE IN INTRODUCING A QUEEN.

Some weeks ago I ordered a queen of a reliable breeder, and when she reached me I set about to introduce her by the common method as usually laid down in directions on the cage; but the colony would not accept her, so I concluded I would try a plan just a little different. I went to another hive and placed their hybrid queen in a cage to give it her scent, leaving the caged queen in her hive six or eight hours; then taking both queens and cages to my store door, right on the floor I killed the hybrid and threw her out and opened the end of the cage containing the bought queen to let her run out so I could grab her and put her in the cage from which the other queen was taken. She was too quick for me. She darted out like a rocket, and was gone for good, as I thought. I could hear and see her occasionally for hours. Several times I gave her up as lost; but she would return and hover around the door, watching her cage, which still contained her escort. Sometimes she would be gone for half an hour at a time, and then I would hear her coming back, and I would take my hat and try to whip her inside so as to close the door and secure her, and I did finally succeed in whipping her inside and catching her at the window, and introduced her to the colony; but she died in about two weeks.

I feel certain that she would have finally gone into the cage which was all the time on the floor, her escort calling.

Wofford, S. C.

S. CHEATHAM.

[There is not much doubt that the queen would have returned to the cage from which she made her escape.—ED.]

A PULLET CAUGHT IN THE ACT OF EATING BEES.

I was down looking at my bees, and saw a large pullet walking around. A little closer watching showed she was looking for

bees. She caught quite a number, and then came up to the hive and took five from the entrance, and hunted for more. This is new to me, but may not be to you.

Ephraim, Utah. ANDREW ARMSTRONG.

[Yes, there have been many reports to show that chickens, after they have once acquired the habit, will eat bees, both live and dead. But there are only a few, comparatively, that learn the trick. As a rule we may say that chickens do not give any trouble in a bee-yard.—Ed.]

BUMBLE-BEES ROBBING HONEY-BEES.

Did you ever hear of the common bumble-bee robbing from bees? My wife one day called my attention to a dead bumble-bee among some drones in front of one of our hives; and while we were discussing the occurrence another one entered the hive, and was immediately dragged out, but at last succeeded in going in, and we supposed they were robbing.

C. L. SNIDER.

Avoca, Minn., Sept. 26.

[Yes, there have been a number of reports of how bumble-bees have had the temerity to push their way into the entrance of a hive of ordinary bees. The result has been either a dead bumble-bee or one so badly scared from the tussle that it concluded discretion was the better part of valor.—Ed.]

ONE HUNDRED DOLLARS FROM FOUR HIVES.

I am a paper-hanger by trade, and have 12 acres just outside the city limits. I can not give the bees the attention they should have to get the best results. I had only 4 hives this spring, but have increased by natural swarms to 14, and have made about \$100 off the bees clear, besides all we use ourselves (about 200 lbs.). I like the Danz. hive because it is easy for an amateur to handle. I winter outdoors, and cover all sides but the south with tar paper, and pack hives in leaves. They seem to do as well as if not better than in the cellar.

R. GRIFFITH.

Kenosha, Wis., Sept. 30.

[Reports of this kind almost go to show that bees pretty nearly work for nothing and board themselves. It is indeed a fact that a few colonies will often give their owner but very little trouble comparatively, and yet will yield a tremendous dividend on the investment.—Ed.]

BEEES POISONED BY VISITING COTTON SPRAYED TO KILL MEXICAN WEEVIL.

I see what Sam Alvord writes with regard to poisoning bees from poisoned cotton. I have two out-apiaries, one of 115 colonies. My neighbors poisoned the cotton to kill the Mexican weevil, and I lost half of my bees. The major portion of the bees would stop on the leaves, grass, and trees, and die. Only a few would get to the hives. Many of the bees would die in the open, even before getting to the hives. Cotton is gen-

erally poisoned in the morning while dew is on it.

H. BOOTON.

Richmond, Texas.

[Your report does not seem to agree with that of Mr. H. H. Hyde, in this issue; and therefore we may conclude that spraying cotton, in some localities at least, does not do any damage. In yours it certainly was the cause of the loss of the bees.—Ed.]

RHEUMATISM NOT CURED BY BEE-STINGS.

As there is so much said in the bee-journals about rheumatism and bee-stings, I will give you my view of it. In the first place, what is rheumatism, and what causes it? I am strongly against any person making a gain out of any advertisement that recommends bee-stings to cure rheumatism. This disease is caused by a disordered liver and impure blood, therefore it must be worked out of the system. I think I have been stung as much as any person, but the only way I can keep the rheumatism down is by keeping the liver in working order.

Gobles, Ont.

THOMAS ARCHER.

[We have had some reports, some showing that bee-stings brought about no relief, and others showing apparently that they did effect wonderful cures. A good deal depends on the nature of the disease and the subject; we have two reports in hand now that go to show what the bee-poison has done, and here they are. Besides that, we have a number of others in manuscript that will be given from time to time.—Ed.]

SCIATIC RHEUMATISM; A REMARKABLE CURE AS A RESULT OF BEE-STINGS.

I have been trying the bee-sting remedy for the rheumatism. I was taken two years ago this month with a severe attack of sciatica, and have not been able to lie on my right side since until within the last two weeks. I commenced about two months ago, and have taken only five or six applications of from six to ten stings at a time, but it has always relieved me of pain within half an hour, and no bad results. My last application was the 9th. I have thrown away my cane, and feel more myself than I have for a long time. I have tried to have several try it, but they think the remedy worse than the disease, but I don't. I expect to apply one or two more doses of stings of not less than ten or twelve at a time. It is not very bad when you get used to it.

Ludlow, Mass., Oct. 17. E. N. FISHER.

In reply to your request I will say that, from 1893 till the spring of 1900, I suffered a good deal with rheumatism. Since then I have been handling a good many very cross bees, and getting stung many times a year. During these four years I have suffered but very little from rheumatism; and as I have not done any thing else for it I believe that it is bee-stings that have cured me.

Havana, Cuba.

J. S. PATTON.



Whosoever drinketh of the water that I shall give him shall never thirst; but the water that I shall give him shall be in him a well of water springing up into everlasting life.—JOHN 4 : 14.

The above text is one I have used before; but an editorial in the *Sunday School Times* has given me a new thought on the subject. Here it is. See what you think about it:

One has often heard of that spring, as sweet as any that ever gushed from sunny hillside, which a traveler once found by the sea when the tide had ebbed away. Then the sea rolled in, and poured its bitter floods over the little spring, hiding it out of sight for hours, wrapping it in a shroud of brackish waters. But when the tide ebbed away again, the spring was still pouring up its sweet stream, with no taste of the sea's bitterness in it. Such a spring should the love in our hearts be. Though floods of unkindness and of wrong pour over us, however cruelly we may be treated by the world, whatever injustice we may have to endure from others, the well of love in our bosom should never retain a trace of the bitterness, but should be always sweet.

It comes to me the more vividly because I have seen springs just like that. Down in Florida, where artesian wells are so common, there are quite a few of them that are covered part of the time by the tides. You may remember I mentioned one away out in the ocean. The pure water, being lighter than the salt water, it rises above it and spreads out around it for quite a distance; and in that locality one can dip pure nice drinking water right from the surface of the ocean, without getting any salt or brackish taste at all. I have been for years praying and striving for such an attitude of heart that, no matter what happens, I may be calm and unruffled in spirit. I have prayed and striven, not only to love my enemies, and to do good to those who hate me, but I have tried hard to do it *right away*. Right while the unkind words were on somebody's lips I have tried to show the world how a soft answer turneth away wrath. But a good many times it has been very poorly done, I must confess. Most of the time this well of living water in the shape of love toward my fellow-man has been pouring forth to at least some extent. When something unkind or undeserved or uncalled-for comes very suddenly, the little spring is not only covered up, but, I greatly fear, it stops running entirely. When I thought one of the boys in my Sunday-school class said he hoped they would drop me out of the flying-machine (the boy did not say it, mind you—I only *thought* he did) I fear that little spring stopped running altogether.

Dear brother or sister, if you have in your feeble way tried to be a Christian worker you have doubtless at times met with a rebuff or criticism that made you feel for a while as if you would have to give up trying to do anybody any good. Sometimes it is a little thing said sneeringly; or Satan may have persuaded you it was said sneeringly, which amounts to the same thing. I have known a good brother or sister to stay away

from prayer-meeting, stop going to Sunday-school, and perhaps declare they would never undertake to teach another class; but what would become of the world if we allowed Satan to put us out in this way? We can not always go unruffled. Sometimes the little spring of "peace and good will" will be checked for a time in spite of us; but as we grow older we ought to learn by experience that it only encourages *Satan* to push ahead when *we* give up; and if we do this, and keep right on, profiting a little by past experience each time in the way of unkind clips, we shall soon get so we shall not mind such things so much. When I started these Home papers, over 25 years ago, a good many times I felt greatly hurt by unkind and severe criticisms. But I do not believe I thought seriously of giving them up while God gave me life; but I have many times decided to be more careful, to listen more closely and prayerfully to the guiding influences of the Holy Spirit, and eventually these criticisms have resulted in good. On page 342 of the *Bee-keepers' Review* for October, Bro. Hutchinson mentions a little incident:

At St. Louis I sat down near two bee-keepers who were having an earnest discussion. The first sentence that caught my ear was as follows:

I tell you, we don't care what his views are on the temperance question, and he has no right using space in his paper to air his views on the subject. We buy his paper for what it can tell us about bees, and not to learn its editor's views on temperance."

The other man replied: "I don't agree with you. When a man owns and publishes a paper, he has a right to put into it what he pleases; and if we don't like it, we needn't take his paper."

Of course, I did not feel much hurt at this frank criticism, for the other man gave him a very good answer; and I am glad Bro. H. gave it a place in the *Review*, for it has set me to thinking, and I presume it has set a good many others to thinking. I am glad the temperance question was mentioned first, because it gives us an excellent illustration. The man or woman who is not always ready with an outspoken opinion on the evil that is the greatest factor in filling our penitentiaries and poorhouses, it seems to me would hardly be up to the times. The editors of our daily papers are nearly all up and on the alert, and outspoken in defending temperance. I wish I could say as much of some of our magazines. Perhaps not all papers of large circulation are defending temperance; but the periodicals that are doing the most good in this land of ours are certainly expressing themselves more or less freely. I believe the periodicals that are doing the most good are the ones where the editor comes out fairly and squarely with his convictions. Occasionally we take up a paper where we can not make out whether the editor has any opinion at all. We often read scientific news where we feel a longing to ask the editor what he thinks about it.

I once saw a brief item in a newspaper in regard to a new flying-machine. It seemed to me incredible that any thing like the statement was going on so near the point where I was then located. I cut it out and asked the editor what he could tell me about

it. He replied, "Of course, it is true. Mr. A. is quite a wealthy man, an excellent citizen, and has been following this thing for the greater part of his life." With this encouragement I made a trip to see the inventor. In this case, of course, there were very good reasons why the editor should not say in print what he wrote me in private. Now, there are other periodicals where you can not for the life of you find out any thing about the proprietor. You can find stereotyped notices that are scattered all over the paper, saying, "We are of the opinion that Mr. A.'s cough cure is one of the best in the world," etc. But who cares for an editor's opinion when said opinion is sold to anybody for 25 cents a line, etc.? Now, it is those who come out openly before the world and express their views on temperance and religion that get the unkind clips. You can avoid them by listening to Satan when he tells you you had better keep still.

Years ago I started a mission Sunday-school in an adjoining town where saloons were rampant. Everybody was pleased, and the school was a success. But one Sunday afternoon, after the school was closed, I did some mission work that resulted in getting a lot of saloon-keepers into a lot of trouble. One of them, who had been on quite friendly terms with me, came to me afterward and said, "Mr. Root, when you came down here and opened up a Sunday-school and taught our children, and while you were friendly toward everybody, and did not interfere with things outside of the Sunday-school work, we were very glad to have you around; but I want to tell you that, if you get out of your place, and stir up another such mess as you did just recently, you had better stay at home and attend to your own business, or you will get into a worse trouble, and that right quick—mark my words for it."

Had I been alone in the matter, perhaps I might have felt hurt, and concluded I had made a mistake. And, by the way, I was pretty much alone so far as *human* counsel or help was concerned, especially in that locality; but the voice of the dear Savior upheld me, and I remembered the words, "Blessed are ye when men shall revile you and persecute you, and speak all manner of evil against you falsely for my sake. Rejoice and be exceeding glad, for great is your reward in heaven;" and I did feel glad, and that spring of water kept pouring forth, notwithstanding those harsh and unkind words from one whom I had previously regarded as a special friend.

After all, there is not so much danger of this life-giving water being quenched by outside influences as those which come from within. Jesus says, "Out of the heart proceed evil thoughts, murders, adulteries, fornications, thefts, false witness, blasphemies; these are the things which defile a man."

All of my life I have been obliged to fight uncharitable thoughts and feelings; for these, if persisted in, will more surely quench this life-giving spring than anything our enemies or the whole world can do from outside of us.

I am ashamed to say that, only last Sunday, when I should have been listening to the beautiful hymns of praise, my mind wandered from one to the other of the good friends who sat near me; and before I knew it I was dwelling on their infirmities and inconsistencies.* Finally I roused up and said, "Get thee behind me, Satan;" but in a little time, back I was at my old trick. Then I considered, and said to myself something as follows: "Look here, old fellow; if the readers of GLEANINGS could read your heart now, as they read your Home papers from the printed page, what would you have to say for yourself? Here in the house of God on this Sunday morning you have been guilty of condemning first one and then another until you had quite a string of them, and looked down upon them as if you were a great deal better."

The picture came up so vividly and strong that my mental prayer welled up, "Lord, help!" and then I felt afterward like adding, and truthfully, "May God have mercy on your poor sinful soul." Before long, by earnest prayer I gained the victory; and when I felt love and charity for all in the church that morning, then that little spring poured forth its living waters, "springing up into everlasting life."



"THE CABIN IN THE WOODS" IN NOVEMBER.

When we reached our place, about Nov. 1, we were greatly pleased to find, as we had found so many years before, vegetation around the cabin almost uninjured by frost. Although every thing had been killed through Ohio and Southern Michigan almost a month before, we found tomatoes, string beans, and green corn in our garden; but we had a killing frost a week after. They have had a big crop of potatoes in the Traverse region. There has been no blight, no rot; and with the holding-off of frost, as I have mentioned, every thing was favorable.

We found our nearest neighbor, Mrs. Heimforth, with her boys, digging potatoes on the top of the highest hill on the farm. When I first got on to our place I said to my neighbor Hilbert that the tops of the very highest hills would probably be of little or

* I suppose this uncharitable mood was started by remembering something I had just heard about a brother in the church whom my eyes happened to rest on. The statement came direct, and the circumstances were such that I supposed the story of his shortcomings was largely true. On Monday morning, however, when I happened to ask the one who had been wronged something about it, I was astonished to find the man was entirely innocent. There was nothing in it at all. This illustrates how exceedingly careful we should be about repeating stories of how a church-member (or anybody else for that matter) has done something a good man ought not to do. It seems as if one is really injured by going over sensational stories about Christians, or say ministers, who are really untrue to their sacred profession or calling.

no account. He, however, said it would be just the place for peach-trees. Well, here on one of the very highest hills, right close to my northeast corner, there was a crop of potatoes that would go in spots fully 200 bushels per acre. They were all nice, large, and clean. The principal crop was Beauty of Hebron; but as they were somewhat mixed we could see all over the field magnificent specimens of Empire State. We picked up some fine specimens, sampled them for dinner, and we found the quality superb. This pearly-white potato comes out of the sandy soil on the hilltops as clean and handsome as it could be washed with water. My neighbor Hilbert has another magnificent crop of Carman No. 3, of about 1400 bushels. The yield is almost equal to that of last year. You may remember I told you last year they ran almost too large for table use, and much too large for seed. I recommended at the time that he make them smaller by *very close* planting. I once succeeded nicely in getting some small Carmans by using 20 bushels of seed to the acre. Well, friend Hilbert did plant close, but there was one lot of seed pieces cut up and placed in a barrel on Saturday that did not get planted till the following Monday. This seed got hot, and, as a consequence, many of the pieces rotted, leaving in one particular spot only about half a stand. Each hill had such an amount of room between itself and its neighbor that not only the tops, but the potatoes as well, grew to an enormous size. A load of these very large Carmans was objected to in Traverse City because of their size. About Nov. 1st they were offering only 23 to 25 cts. a bushel in Traverse City. Within a week, however, the price went up to between 25 and 30 cts. I told my neighbors I thought even that was a rather small price. But Orville, Mrs. Heimforth's son, a bright young farmer of about 18, thought he could do very well in raising potatoes on the hilltops if he were sure of getting even 25 cts. a bushel.

Now, peaches and potatoes are not the only thing these hilltops are good for. Another neighbor showed me a Baldwin apple-tree close to his house, from which he picked last year 47 bushels of apples. I told him I would give that tree a write-up. But he said, "Now, Mr. Root, if you do, I want you to tell the whole story. This spring I found the tree dead, root and branch." Will some apple-man tell me whether it was the great crop or the hard winter, or both, that killed the tree? If the former, could he probably have saved the tree by a severe thinning-out of the fruit?

Mrs. Root and I enjoyed our walks in the woods wonderfully. She walked with me about five miles visiting neighbors the first day. This pretty nearly used her up; but by resting up one day she was ready for more tramping. It is strange how soon one gets his muscles hardened up so as to climb hills with impunity. Our last day around the cabin was spent in cutting a foot-path through a part of our woods where we had

never been before. It is through a long crooked ravine that they would call a "canyon" in California. This ravine was tangled up with great trees that had fallen for years past. Some of them were four or five feet in diameter. By the use of a sharp ax, hatchet, brush-hook, and a hoe, we made a crooked path up to the northwest corner. We call it the "Northwest Passage." When we came out on the summit of one of the highest hills we found ourselves in a neighbor's apple-orchard. But didn't we enjoy those apples after our work! Then we went over the big hill and admired his outdoor cellar for storing potatoes and apples. It is cut into the side of a sandy hill, pretty nearly on a level with the floor of the house, so the good wife does not have to climb up and down stairs. Here is another hint toward saving labor—that is, where you have a sandy hill close to your dwelling.

While the corn crop has been remarkably poor throughout Ohio and Southern Michigan, it is unusually good in the Traverse region. But this does not mean that the crop is equal to the corn crops usually grown throughout the great West; for Northern Michigan is not a corn-growing region. Mrs. Root and I both had the experience over again we have had for years past, in finding rest, recreation, buoyant health and spirits, in our northern home. Traverse City is putting up more buildings than any other place I know of, and some of its recent structures are about as fine edifices as you will find in some of our largest cities. It is still a clean city, without any coal smoke. By the way they are crowding the saloons it looks as if they might be clean in other ways than getting rid of the coal smoke. If I remember correctly, the saloons are all not only compelled to shut up on Sunday, but at 11 o'clock at night. When the beer-men began to grumble at this the temperance people informed them that, if any change were to be made in the hours of closing, it would be to 10 o'clock instead of 11.



APPLES—SOMETHING MORE ABOUT THEM.

A few days ago the foreman of our machine-shop said one of the boys gave him an apple that came from one of the trees in our orchard, and he said it was the best apple he ever tasted in his life. He wanted to know if I had any for sale; and if I did, he said he wanted them, no matter what the price—that is, within the bounds of reason. Now, what apple do you suppose it was? The Gravenstein. It is a beautiful apple in shape, exceedingly handsome in color, and since my attention has been called to it I do not know but I too can call the Gravenstein equal to any apple I ever tasted. It is a fair-sized

apple, not extra large, almost round, striped with brilliant red, perhaps a trace of yellow. It has one particular feature that makes it look remarkably tempting. Wherever a leaf rests on an apple, usually around near the stem, under the leaf it is a delicate white, shading into a rosy red where the light gets in, giving dashes of pearly white, occasionally, as if a painter had dabbed his brush just a little here and there. The apple can hardly be called sweet or sour, but it is a beautiful combination of both. It is quite juicy, and many of them are water-core; but when fully ripe it almost melts in the mouth like a peach. They commence ripening about the first of September, and last pretty well throughout October.

Our readers may remember that I have spoken twice about an apple-tree that commenced bearing remarkably early. In fact, it had three or four nice apples the season after it was taken from the nursery. At the time, I called it the Porter apple, and said it was about as early as the Early Harvest. Several of our readers protested that the Porter ripened along in the fall. Well, I have just discovered this season that the two trees were misplaced. The one I was talking about is the Yellow Transparent. The real Porter apple-tree did not commence bearing until two years later. This year there were perhaps twenty or thirty great beauties on the Porter tree. They ripened about with the Gravenstein—perhaps a little earlier—a very large conical-shaped apple, yellow in color, and one of the best in quality, according to my notion. This year the twenty or thirty apples were none of them wormy so far as I could discover, and nearly if not all were quite perfect in shape. I wonder if this is a peculiarity of the Porter. It is a beautiful cooking apple, and when dead ripe Mrs. Root said it would make nice sauce in *ten minutes*. By the way, Mrs. Root's favorite cooking apple is the Twenty-ounce Pippin, sometimes called Cayuga Red-streak. This cooks about as quick as the Porter, is of excellent quality, and the apples grow so large that one of them will make a pie or a bowl of sauce. Our very large apples, or large any thing else, is seldom of the best quality. Hold on! that might mean men and women; and lest some of my big friends take offense I will say it does not apply to people. Well, the Twenty-ounce is not only tremendous in size, but it is excellent in quality. About the only objection I know to it is that many are of bad shape, and all or nearly all have a warty uneven surface. They do not pare quite as nicely as the Gravenstein and the Porter.

There is one more apple that rejoices the hearts of our whole neighborhood, especially the juveniles. We bought it for a Mann apple, but there is some dispute as to whether it is the genuine Mann. These commence ripening a little after the Early Harvest, and they continue to ripen gradually for almost if not quite three months—say August, September, and October. They are about the juiciest apple I ever got hold of. The

flesh is as crisp as a fresh stalk of celery. They do not grow very large—especially when the tree is loaded as full as it was this year. The Pomological Department at Washington said some specimens I sent them in October they thought were not the real Mann at all—that they lacked both in size and quality. The apple is pearly white when dead ripe. Prof. Brackett, of the Pomological Department, wishes me to say that he will gladly name any apple you may have in your orchards, and the Department will send boxes for the specimens so that you can mail them without cost. This is done to encourage people in calling apples by their right names. The Department has several bulletins to dispose of free of charge on apple culture—varieties, etc.

Now, my good friend, if you haven't one or more apple-trees of your own, so you can watch the fruit every day, see it put on its gorgeous colors, and ripen up, so you can pick it when it is just right, you are missing one of the great enjoyments the kind Father vouchsafes his children. Get an apple-tree; make a pet of it; study its habits and ways; and if it does not pour out a golden harvest for yourself and children (and *grand-children*), then it will be the exception and not the rule.

Last evening I was very hungry. I had been working hard all day, directing and assisting the road-makers in the work of grading in front of our home, preparatory to laying vitrified brick. On the table I noticed a tempting-looking dish of baked apples. I think they were prepared by Miss Carrie. She is lately home from school, and is supposed to know how to do almost every thing in up-to-date style. Then we had some just extra nice graham bread. I rather think that Mrs. Root furnished the latter. For some reason or other the butter seemed especially nice. When I have graham bread and baked apples, somehow it seems as if a pitcher of cold milk is just the thing to make out a "balanced ration," and I think I never enjoyed a supper much more. Baked apples, graham bread, and butter and cold milk, constitute my ideal repast.

When I began praising particularly the baked apples, Mrs. Root remarked, "Why, perhaps you have not noticed it, but there is one variety of apple in our orchard that is especially nice for baking in this way. Can you tell what apple it is?" When I gave up guessing she informed me it was the Northern Spy. I think the apples were quartered, with the peel left on, and baked in the oven so as to have the juice run out and make a sort of sauce. Be careful not to put in too much sugar. It not only spoils them for my particular self, but I am sure it makes them indigestible. Many dyspeptic persons, I am sure, would be greatly benefited by cutting off refined sugar. Put in sweet apples for the sweetening, or use honey, the sweet that nature prepares without going through any factory. Now you want your graham bread made just right, and nice butter; and be sure to have a pitcher of nice cold milk. The cold

milk comes in with the bread and baked apples like cranberries with turkey. And, by the way, with the above menu I do not want any turkey, nor meat of any kind; and tea or coffee or any other hot drink—take it away off somewhere. I do not want it around.

Now, to enjoy this bill of fare to its fullest extent it may be necessary that you should work hard out in the open air during some cool November day. But I tell you it is worth all it costs to get one into a mood for saying inwardly, if not out loud, "Praise God, from whom all blessings flow."

By the way, the Northern Spy, although a splendid apple for cooking, does not keep very well. But just have a good lot in your cellar, and then when you get tired reading books and papers during the long winter evenings go down and sort the apples over. Pick out every one that shows the least disposition to rot. When rot first commences, then the apples are in the very best condition for cooking, fully ripe, and easy to digest. If you enjoy nice apples as much as I do you will enjoy this work of sorting over. You want a good clear light, a pair of specs if you are as old as I am, and some nice clean potato-boxes. Take every apple in your hand, and look over and admire it. In this way you will never lose an apple by decay, and you will always have apples that are fully ripe, for daily use.

Now, do not get lazy, and push the apple-sorting over on to the shoulders of the dear wife. After you have sorted them as I have directed she will do the rest, I will guarantee.

INOCULATION OF SOILS WITH BACTERIA.

One of our readers sends us a printed circular offering to send enough bacteria medicine, or whatever is the proper name of it, to inoculate an acre of soil for a great variety of different crops. You must tell whether you want to grow corn, cabbages, potatoes, etc., and then these people will send you just the right *kind* of bacteria to increase greatly the crop. Now, if the Agricultural Department at Washington, or our various experiment stations want to send bacteria by mail free, to be tested, that is all right. But do not give your dollars to anybody or to any firm that says they can send you exactly what you want for alfalfa, sweet clover, or any thing else—certainly not till our experiment stations have indorsed it and the man who sends it out.

CLOTH-COVERED GREENHOUSES.

I notice by the November issue of *Country Life in America* that greenhouses (or perhaps cold-frames) covered with just cheap cheese-cloth, are being used successfully in many places, and that this cheap loose protection makes some vegetables mature two or three weeks earlier. This matter is simply carrying along a little further the cloth-covered frames mentioned in our book on tomatoes; and from the experiments I saw

conducted at our Ohio Experiment Station I am satisfied this slight protection from the hot sun will be of great benefit to many things grown in the garden. It is so porous that it permits rains, etc. The one pictured in *Country Life* was worth more to me than the whole price of the journal; and, by the way, there is nothing handsomer in the way of fine illustrations in any magazine in the whole world, so far as I know. If you have never seen it, you want at least a sample copy.

THE "FARMERS' CYCLOPEDIA OF AGRICULTURE."

THERE has just been issued from the press of the O. Judd Co., New York, a cyclopedia touching many phases of agriculture, wide as that subject is. It takes up field crops, garden crops, fruits and nuts, cattle and dairy, live stock, poultry, fertilizers, drainage, soils, and irrigation. Under the head of "Miscellaneous" are included many items indirectly allied to the subject of agriculture, and it is right here that we find bees. Six double-column pages discuss bee-plants, hives, swarming, wintering, feeding, diseases, and literature. The article is well written, and, in general, is quite accurate, but bears evidence here and there of having been prepared by one who has not had practical experience in handling bees themselves. No doubt the two editors, Messrs. Wilcox and Smith, are practical men on the general subject of agriculture, on which they write, but it seems to us that it would have been a little better if they had called in a practical bee-keeper who could write an article based on his own personal knowledge. There is one place in the article, for example, that does not sound like one who is writing from experience. The author says, regarding the general subject of feeding bees up for the winter, "In many cases it will be found desirable to feed bees *during* the winter season for the purpose of bringing the colony out in the spring in a more vigorous condition" (*italics* ours). And, again, appears this: "In some experiments where extracted honey was fed back after the honey season was over, it was found that this was done with a profit of nearly six per cent."

In the first quotation, one would gather the impression that bees are fed *during* mid-winter, which is not the case, at least in the North, except in very rare instances when sealed combs or cakes of candy are given. The second quotation follows just after the first, and it seems to be out of place. The illustrations of the bees themselves are more like big flies than the insects that gather honey.

Still, this book is very instructive, and, taking it all in all, it is an excellent digest of a great subject, boiled down in a small compass. The whole book seems to be clear up to date, and no doubt it will make a very convenient work of reference. It can be obtained of the publishers. It is sold in cloth at \$3.50; half morocco, \$4.50.

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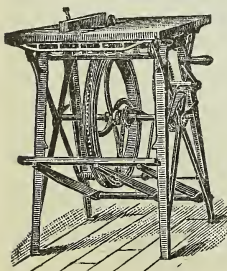
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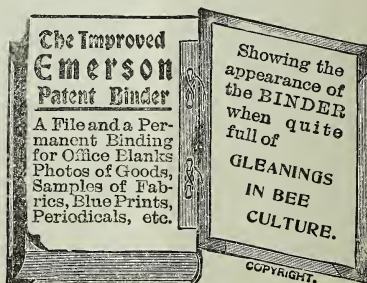
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